

IDC RE-ENGINEERING REPORT

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IDC Re-Engineering Phase 2 Iteration E1 and E2 Use Case Updates

Version 1.0

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Abstract

This document contains the specific updates that were made to the 42 use cases that were delivered to the IDC in Elaboration 1 and Elaboration 2.

REVISIONS

Version	Date	Author/Team	Revision Description	Authorized by
1.0	1/30/2017	SNL IDC Re-Engineering Team	Initial Release for E3	M. Harris

TABLE OF CONTENTS

Use Case Hierarchy.....	7
UC-01.00 System Receives Station Data	10
UC-01.04 System Acquires Meteorological Data	11
UC-02 System Detects Events	11
UC-02.01 System Determines Waveform Data Quality.....	12
UC-02.02 System Enhances Signals	12
UC-02.03 System Detects Events Using Waveform Correlation	13
UC-02.04 System Detects Signals.....	14
UC-02.05 System Measures Signal Features.....	14
UC-02.06 System Builds Events Using Signal Detections.....	14
UC-02.07 System Resolves Event Conflicts	16
UC-02.08 System Refines Event Location.....	16
UC-02.09 System Refines Event Magnitude.....	17
UC-02.10 System Evaluates Moment Tensor	18
UC-02.11 System Finds Similar Events	18
UC-02.12 System Predicts Signal Features	18
UC-03 Analyzes Event.....	19
UC-03.01 Selects Data for Analysis.....	20
UC-03.02 Refines Event	20
UC-03.02.01 Determines Waveform Data Quality.....	23
UC-03.02.02 Enhances Signals.....	23
UC-03.02.03 Detects Signals	23
UC-03.02.04 Measures Signal Features	23
UC-03.02.05 Refines Event Location	24
UC-03.02.06 Refines Event Magnitude	24

UC-03.02.07 Evaluates Moment Tensor	24
UC-03.02.08 Compares Events.....	24
UC-03.03 Scans Waveforms and Unassociated Detections.....	25
UC-03.04 Builds Event.....	27
UC-03.05 Marks Processing Stage Complete	27
UC-05.02 Views System Results	28
UC-06.03 Defines Processing Sequence	29
UC-06.06 Views System Configuration History	30
UC-07.01 Analyzes Mission Performance	31
UC-08.02 Controls the System.....	32
UC-08.05 Views Event History	32
UC-09.03 Replays Test Data Set.....	33
UC-11.02 Develops New Algorithms and Models.....	33
UC-13.02 Performs Standalone Analysis.....	34
UC-14.01 Assesses Event Consistency	34
UC-14.02 System Screens Event	35
UC-14.03 System Controls Stations.....	36
UC-14.04 Performs Expert Technical Analysis	36

Use Case Hierarchy

The IDC Use Case Hierarchy is shown here. The highlighted use cases are the use cases that have updates. The use cases highlighted in yellow are the use cases that were first delivered in E1. The use cases highlighted in green are the use cases that were first delivered in E2.

1 System Acquires Data

- 1.1 System Receives Station Data
- 1.2 System Receives Bulletin Data
- 1.3 System Automatically Distributes Data
- 1.4 System Acquires Meteorological Data
- 1.5 System Synchronizes Acquired Station Data
- 1.6 System Synchronizes Processing Results

2 System Detects Event

- 2.1 System Determines Waveform Data Quality
- 2.2 System Enhances Signals
- 2.3 System Detects Events using Waveform Correlation
- 2.4 System Detects Signals
- 2.5 System Measures Signal Features
- 2.6 System Builds Events using Signal Detections
- 2.7 System Resolves Event Conflicts
- 2.8 System Refines Event Location
- 2.9 System Refines Event Magnitude
- 2.10 System Evaluates Moment Tensor
- 2.11 System Finds Similar Events
- 2.12 System Predicts Signal Features

3 Analyzes Events

- 3.1 Selects Data for Analysis
- 3.2 Refines Event
 - 3.2.1 Determines Waveform Data Quality
 - 3.2.2 Enhances Signals
 - 3.2.3 Detects Signals
 - 3.2.4 Measures Signal Features
 - 3.2.5 Refines Event Location
 - 3.2.6 Refines Event Magnitude
 - 3.2.7 Evaluates Moment Tensor
 - 3.2.8 Compares Events
- 3.3 Scans Waveforms and Unassociated Detections
- 3.4 Builds Event
- 3.5 Marks Processing Stage Complete

4 NA

5 Provides Data to Customers

5.1 Requests System Data

5.2 Views System Results

6 Configures System

6.1 Controls Data Acquisition

6.2 Configures Station Usage

6.3 Defines Processing Sequence

6.4 Configures Data Acquisition

6.5 Configures Processing Components

6.6 Views System Configuration History

6.7 Configures Analysis Interfaces

6.8 Configures System Permissions

7 Monitors Performance

7.1 Analyzes Mission Performance

7.2 Monitors System Performance

7.3 Monitors Station State-of-Health

7.4 System Monitors Mission Performance

7.5 Monitors Mission Processing

8 Supports Operations

8.1 Accesses the System

8.2 Controls the System

8.3 Exports Data

8.4 Imports Data

8.5 Views Event History

8.6 Maintains Operations Log

8.7 Provides Analyst Feedback

8.8 Views Analyst Feedback

8.9 Views Analyst Performance Metrics

8.10 Views Security Status

8.11 Views Messages

9 Tests System

9.1 Performs Software Component Testing

9.2 Creates Test Data Set

9.3 Replays Test Data Set

9.4 Replays Analyst Actions

10 Maintains System

10.1 Performs System Backups

10.2 Performs System Restores

10.3 Installs Software Update

10.4 System Monitors Security

11 Performs Research

11.1 Analyzes Special Events

11.2 Develops New Algorithms and Models

- 11.3 Determines Optimal Processing Component Configuration
- 11.4 Performs Multiple Event Location

12 Performs Training

- 12.1 Configures Data for Training Subsystem
- 12.2 Trains Analysts

13 Operates Standalone Subsystem

- 13.1 Conducts Site Survey
- 13.2 Performs Standalone Analysis

14 IDC Unique

- 14.1 Assesses Event Consistency
- 14.2 System Screens Event
- 14.3 System Controls Stations
- 14.4 Performs Expert Technical Analysis

UC-01.00 System Receives Station Data

UPDATES FROM E1

- Updated the brief description to change from copying data from the Data Acquisition Partition to the Data Processing Partition, to copying data between Data Acquisition Partitions on different systems.
- Updated the main flow:
 - Changed step “Copy data to Data Processing Partition” to be “Copy data to other Data Acquisition Partition”.
 - Removed step about saving data on the Data Processing Partition.
 - Updated action descriptions for “Copy data to other Data Acquisition Partition” and “Store data on the Data Acquisition Partition” to include the statement that the data is stored on the Data Acquisition Partition for access and processing by the Data Processing Partition.
 - Updated the alternate flow to have two paths if data fail to transfer to the other Data Acquisition Partition. One path is to notify the System Controller of the missing data and the other path is to automatically request retransmission of the missing data.
- Added new specs S-1184, S-1199, S-2064 and S-6542:
 - **S-1184:** [*Threshold*] The System shall provide the System Controller the capability to request that waveform data be re-transmitted between partitions.
 - **S-1199:** [*Threshold*] The System shall authenticate the digital signature using PKI credentials upon receipt of signed station waveform data.
 - **S-2064:** [*Threshold*] The System shall identify data lost during transfer between partitions.
 - **S-6542:** [*Threshold*] The System shall automatically forward acquired waveform data between partitions.
- Removed specs S-1946, and S-1959:
 - **S-1946:** [*Threshold*] The System shall synchronize the System User's displays based on user actions.
 - **S-1959:** [*Threshold*] The System shall provide the System User the capability to view on-line help.
- Added new glossary terms: IDC (International Data Center), IMS (International Monitoring System), Mini-SEED Format.
- Updated general note #2 about forwarding data between Data Acquisition Partitions, not between a Data Acquisition Partition and a Data Processing Partition.
- Added new general note #3 about the System being able to disable the storage of station data on the Data Acquisition Partition on a per station basis.
- Updated IDC Specific note #2 to say the data is automatically retransmitted between two Data Acquisition Partitions.

UC-01.04 System Acquires Meteorological Data

UPDATES FROM E1

- Updated the brief description to change from copying data from the Data Acquisition Partition to the Data Processing Partition to copying data between Data Acquisition Partitions on different systems.
- Updated the architecturally significant statement in the brief description to add more details.
- Updated the main flow:
 - Added the step “Requests data”.
 - Changed the step “Copies data to Data Processing Partition” to be “Copy data to other Data Acquisition Partition”.
 - Updated action descriptions for “Copy data to other Data Acquisition Partition” and “Stores data” to say the data is stored on the Data Acquisition Partition for access and processing by the Data Processing Partition.
 - Updated the action description for “Builds atmospheric model” to specifically say that the System stores the model.
 - Updated the alternate flow to have two paths if data fail to transfer to the other Data Acquisition Partition. One path is to notify the System Controller of the missing data and the other path is to automatically request retransmission of the missing data.
- Changed the priority on S-5654 and S-5656:
 - The priority on S-5654 was changed from Extensibility to Threshold.
 - The priority on S-5656 was changed from Threshold to Objective/Priority 1.
- Updated general note #1 to say the use case only runs on the Data Acquisition Partition and not the Data Processing Partition.
- Added general note #6 that says that the acquired meteorological data is not stored on the System, but may be re-requested at a later time.

UC-02 System Detects Events

UPDATES FROM E1

- Added new specs S-1872, S-2166, S-6469, S-6521, and S-6522:
 - **S-1872:** [*Threshold*] The System shall provide the Analyst the capability to interrupt automated event hypothesis processing to analyze data if configured.
 - **S-2166:** [*Threshold*] The System shall automatically process late-arriving waveform data within one (1) minute of receipt by the Data Processing Partition.

- **S-6469:** [*Threshold*] The System shall store detection feature maps.
- **S-6521:** [*Threshold*] The System shall store seed events.
- **S-6522:** [*Threshold*] The System shall store seed event quality.
- Removed specs S-1859, S-1863, S-2420, and S-5611:
 - **S-1859:** [*Threshold*] The System shall set the processing stage workflow status of a processing time interval to reflect analysis activity.
 - **S-1863:** [*Threshold*] The System shall preserve analyst processing results.
 - **S-2420:** [*Threshold*] The System shall provide the Analyst the capability to store selected derived waveforms.
 - **S-5611:** [*IDC only, null*] The Data Processing Partition shall request auxiliary seismic waveform data from the Data Acquisition Partition.
- Added new glossary term: Late-Arriving Waveform.
- Added new general note #4 that states that use cases invoked by this use case are responsible for computing quality metrics.

UC-02.01 System Determines Waveform Data Quality

UPDATES FROM E2

- Updated the action description for “Analyze waveform data for Data Quality errors” to add in timing errors as something for which the System checks.
- Added new specs S-6495 and S-6496:
 - **S-6495:** [*Objective / Priority 2*] The System shall automatically identify waveform data containing timing errors.
 - **S-6496:** [*Objective / Priority 2*] The System shall automatically create a Waveform QC Mask for waveform data containing timing errors.
- Added new glossary terms: Quality Control (QC), Random Binary Calibration and Waveform Quality Control.

UC-02.02 System Enhances Signals

UPDATES FROM E2

- Added new glossary term: Array Coherence.

UC-02.03 System Detects Events Using Waveform Correlation

UPDATES FROM E1

- Updated the architecturally significant statement to add more details.
- Updated the main flow:
 - Updated the action description for the step “Create and associate signal detections to new event hypothesis” to add a sentence about setting signal detection feature measurements and uncertainties for the created signal detection hypothesis.
 - Added the step “Computes and stores quality metrics and probability of detection” for computing and storing a station processing metric, station probability of detection and event quality metric for each location solution of the new event hypothesis.
 - In the first alternate flow added that the System can only modify an Analyst reviewed event hypothesis when the change in the quality metric exceeds a configured threshold.
- Added new specs S-1517, S-1564, S-1579, S-1588, S-2043, and S-2223:
 - **S-1517:** [*Objective / Priority 2*] The System shall recreate previously rejected event hypotheses as a result of the Analyst invoking automated processing algorithms only when the event quality metric for the automatic event hypothesis improves more than a configured threshold.
 - **S-1564:** [*Threshold*] The System shall calculate signal detection feature measurement uncertainties for signal detections found using waveform correlation using the cross correlation coefficient.
 - **S-1579:** [*Threshold*] The System shall compute an event hypothesis quality metric using the event hypothesis quality statistics for each event hypothesis formed on the System.
 - **S-1588:** [*Threshold*] The System shall store the event quality metric for each event hypothesis.
 - **S-2043:** [*Threshold*] The System shall store automatic and interactive processing results.
 - **S-2223:** [*Threshold*] The System shall store all data and derived processing results to persistent storage as soon as the data and/or derived processing results are available.
- Added new glossary term: Reference Event.
- Updated general note #2 to state that the Reference Event Database has been replaced by the concept of Event Catalog.

UC-02.04 System Detects Signals

UPDATES FROM E2

- Added new glossary terms: Array Coherence, Pixel Family, and Power Detector.

UC-02.05 System Measures Signal Features

UPDATES FROM E2

- Added new glossary term: Signal Characterization.

UC-02.06 System Builds Events Using Signal Detections

UPDATES FROM E1

- Updated the architecturally significant statement to add more details.
- Updated the main flow:
 - Updated the action descriptions for “Calculates station probability of detection and quality metric” and “Calculates event hypothesis quality metrics” to say that the probability of detection and quality metric are made for each location solution of the event hypothesis.
 - Added a new alternative flow on the step “Builds new event hypothesis” to say that other sources of events like waveform correlation results can be used to create candidate events to which the System can associate signal detections and determine quality metrics.
- Added new spec S-1517, S-1547, S-1549, S-1580, S-2043, S-2223, S-6513, S-6519, S-6521 and S-6522:
 - **S-1517:** [*Objective / Priority 2*] The System shall recreate previously rejected event hypotheses as a result of the Analyst invoking automated processing algorithms only when the event quality metric for the automatic event hypothesis improves more than a configured threshold.
 - **S-1547:** [*Threshold*] The System shall recreate an event hypothesis during late association that was rejected in user review only when the event quality metric for the automatic event hypothesis improves more than a configured threshold or when the new event hypothesis definition differs from the original event hypothesis more than a configurable threshold.
 - **S-1549:** [*Threshold*] The System shall perform late network signal association during the operational processing time period.

- **S-1580:** [*Threshold*] The System shall recompute the event hypothesis quality metric for an event hypothesis when any of the event hypothesis quality statistics used to calculate the event hypothesis quality metric are updated.
- **S-2043:** [*Threshold*] The System shall store automatic and interactive processing results.
- **S-2223:** [*Threshold*] The System shall store all data and derived processing results to persistent storage as soon as the data and/or derived processing results are available.
- **S-6513:** [*Threshold*] The System shall build new events using seed events from third-party event bulletins.
- **S-6519:** [*Threshold*] The System shall compute seed event quality for each seed event based on the source providing the seed event.
- **S-6521:** [*Threshold*] The System shall store seed events.
- **S-6522:** [*Threshold*] The System shall store seed event quality.
- Removed spec S-1816, 1-1817, S-1818, S-1819, S-1820, S-1821, S-1822, S-1823, S-1824, and S-3045:
 - **S-1816:** [*Threshold*] The System shall store the earth model and version used to compute an earth model prediction.
 - **S-1817:** [*Threshold*] The System shall store the corrections applied to earth model predictions.
 - **S-1818:** [*Threshold*] The System shall store the correction surface used to correct an earth model prediction.
 - **S-1819:** [*Threshold*] The System shall store the predicted slowness computed from a basemodel.
 - **S-1820:** [*Threshold*] The System shall store the uncertainties of a predicted slowness computed using a basemodel.
 - **S-1821:** [*Threshold*] The System shall store the predicted azimuths computed using a phase-specific basemodel.
 - **S-1822:** [*Threshold*] The System shall store the uncertainties of predicted azimuths computed using a basemodel.
 - **S-1823:** [*Threshold*] The System shall store the predicted travel-times computed from a basemodel.
 - **S-1824:** [*Threshold*] The System shall store the uncertainties of predicted travel-times computed using a basemodel.
 - **S-3045:** [*Threshold*] The System shall correct signal amplitudes for decay from geometric spreading when applying amplitude attenuation corrections.
- Added new glossary terms: Active Review, Association, Hydrophone Station, Seed Event, T-phase Station.
- Removed open issue.

UC-02.07 System Resolves Event Conflicts

UPDATES FROM E2

- Updated the Subflow – Validates Event Hypothesis:
 - Updated the action descriptions for “Calculates station probability of detection and quality metrics” and “Calculates event hypothesis quality metrics” to say that the probability of detection and quality metric are made for each location solution of the event hypothesis.
- Added new spec S-1542:
 - **S-1542:** [*Threshold*] The System shall not automatically perform network signal association affecting signal detections that the Analyst is actively reviewing.
- Removed spec S-1517:
 - **S-1517:** [*Objective / Priority 2*] The System shall recreate previously rejected event hypotheses as a result of the Analyst invoking automated processing algorithms only when the event quality metric for the automatic event hypothesis improves more than a configured threshold.
- Added new glossary term: Association, Hydrophone Station, T-phase Station.
- Added new general note #5 that notes that if an Analyst is actively reviewing a signal detection, the System will not automatically update that signal detection’s associations to the event hypothesis.

UC-02.08 System Refines Event Location

UPDATES FROM E1

- Updated the main flow:
 - Updated the action description for “Computes location uncertainty bounds” to remove the sentence about weighting parameters when an event was detected by waveform correlation.
 - Updated the action description for “Calculates station quality metrics” to say the station quality metric is computed for configured raw and derived channels for each location solution of the event hypothesis.
 - Added new step “Calculates probability of detection and event quality metrics” and the metrics are calculated for each location solution of the event hypothesis.
 - Removed the alternate flow that stated that if there is only one event hypothesis then the relative signal detection features cannot be computed.
- Added new specs S-1580, S-1588, S-2043 and S-2223:
 - **S-1580:** [*Threshold*] The System shall recompute the event hypothesis quality metric for an event hypothesis when any of the event hypothesis

- quality statistics used to calculate the event hypothesis quality metric are updated.
 - **S-1588:** [*Threshold*] The System shall store the event quality metric for each event hypothesis.
 - **S-2043:** [*Threshold*] The System shall store automatic and interactive processing results.
 - **S-2223:** [*Threshold*] The System shall store all data and derived processing results to persistent storage as soon as the data and/or derived processing results are available.
- Removed specs S-1564, and S-1601:
 - **S-1564:** [*Threshold*] The System shall calculate signal detection feature measurement uncertainties for signal detections found using waveform correlation using the cross correlation coefficient.
 - **S-1601:** [*Threshold*] The System shall compute modeling uncertainties for model based predictions of signal detection measurements.
- Updated specs S-1592, S-1593, S-1594 and S-1595 to use the term “signal detection feature measurements” instead of “event hypothesis relocation parameters”.
- Updated spec S-6290 to use the term “signal detection feature measurements” instead of “travel time, back-azimuth or horizontal slowness”.
- Added new glossary terms: Earth Model 1D, Earth Model 2D, Earth Model 3D, Origin.
- Updated general note #1 to make clear that the automated processing does not use relative relocation algorithms.
- Updated general note #2 to explain that how the automated processing runs is defined in the UC ‘Defines Processing Sequence’ instead of giving a concrete example.

UC-02.09 System Refines Event Magnitude

UPDATES FROM E2

- Updated the main flow:
 - Updated the action description for “Compute quality metrics and probability of detection” to add a sentence that says the System computes the quality metrics and probability of detection for each location solution.
- Added new specs S-6486, S-6487, S-6488, S-6489, S-6590, S-6492, S-6493 and S-6494. The new specs are for the different kinds of magnitudes that can be calculated.
 - **S-6486:** [*Threshold*] The System shall compute the mb body wave magnitude estimate.
 - **S-6487:** [*Threshold*] The System shall compute the mbMLE maximum likelihood body wave magnitude estimate.

- **S-6488:** [*Threshold*] The System shall compute the mbrel relative body wave magnitude estimate.
- **S-6489:** [*Threshold*] The System shall compute the ms surface wave magnitude estimate.
- **S-6490:** [*Threshold*] The System shall compute the msVMAX surface wave magnitude estimate.
- **S-6491:** [*Threshold*] The System shall compute the msMLE maximum likelihood surface wave magnitude estimate.
- **S-6492:** [*Threshold*] The System shall compute the ml local magnitude estimate.
- **S-6493:** [*Threshold*] The System shall compute the mw coda coda magnitude estimate.
- **S-6494:** [*Threshold*] The System shall compute infrasound magnitude.
- Added new glossary terms: Maximum Likelihood Magnitude Estimation (MLE) and Station Magnitude.
- Updated general note #1 to include a list of the possible magnitudes that can be computed.

UC-02.10 System Evaluates Moment Tensor

UPDATES FROM E2

- No updates since E2 delivery.

UC-02.11 System Finds Similar Events

UPDATES FROM E2

- No updates since E2 delivery.

UC-02.12 System Predicts Signal Features

UPDATES FROM E1

- Updated the architecturally significant statement to add more details.
- Added new specs S-1601, S-2043, S-2223 and S-6541:
 - **S-1601:** [*Threshold*] The System shall compute modeling uncertainties for model based predictions of signal detection measurements.

- **S-2043:** [*Threshold*] The System shall store automatic and interactive processing results.
- **S-2223:** [*Threshold*] The System shall store all data and derived processing results to persistent storage as soon as the data and/or derived processing results are available.
- **S-6541:** [*Threshold*] The System shall compute the probability of a station detecting a signal from an event.
- Changed the priority of specs S-1779, S-1781, S-1791, S-1793, S-1795, S-1798, S-1827, S-1829, and S-5654 from Extensibility to Threshold.
- Changed the priority of specs S-1783, S-1794, S-1785, S-1786, S-1787, S-1788, S-1789, and S-1790 from Extensibility to Objective / Priority 1.
- Changed the priority of specs 1851 from Objective / Priority 1 to Threshold.
- Changed the priority of specs S-5655, S-5656, S-5657 from Threshold to Objective / Priority 1.
- Added new glossary terms: Earth Model 1D, Earth Model 2D, Earth Model 3D, Empirically Derived Corrections, and Quality Factor.

UC-03 Analyzes Event

UPDATES FROM E2

- Added a new alternate flow on any action in the main flow. The action says that the Analyst is notified if late data that is relevant to the analysis session arrives.
- Updated the action description for “Displays available comparison events” in the main flow to use the phrase “events added to an event catalog” in place of “reference event”.
- Updated the action description for “Specifies event selection criteria” in the Subflow – Find Comparison Events Using Search Criteria to use the phrase “events added to an event catalog” in place of “reference event”.
- Added specs S-6485:
 - **S-6485:** [*Objective / Priority 2*] The System shall notify the Analyst within 1 minute of data creation when new alphanumeric data (e.g. events, signal detections) is created during a waveform analysis session that is relevant to that session.
- Removed specs S-1975:
 - **S-1975:** [*Threshold*] The System shall generate tabular listings of the results of spatial processing of geospatial data, e.g. event hypothesis data selected by spatial processing with geographic information.
- Added new glossary term: Interactive Processing.
- Added a new note about the Analyst being notified if late data arrives.

UC-03.01 Selects Data for Analysis

UPDATES FROM E2

- Removed the precondition.
- Updated the main flow to change the name of the step from “Specifies analysis data selection criteria” to “Selects data to analyze”.
- Removed specs S-1157, S-1915, and S-1919:
 - **S-1157:** [*Objective / Priority 2*] The System shall provide the Analyst the capability to view newly acquired waveform data within 1 minute of acquisition.
 - **S-1915:** [*Threshold*] The System shall provide the Analyst the capability to process data without altering another Analyst's existing solution **S-1372:** [*Threshold*] The System shall provide the Analyst the capability to view continuous beams.
 - **S-1919:** [*Threshold*] The System shall provide the Analyst the capability to analyze events in any order.
- Added a new general note that the System marks for further review any Analyst-reviewed event that has been modified.

UC-03.02 Refines Event

UPDATES FROM E1

- Updated the architecturally significant statement to add more details.
- Updated the main flow:
 - Updated the action description for “Displays select event hypothesis” to say that when an event hypothesis is selected for refinement, a new working version of the event hypothesis is created.
- Updated the subflow – Refines Event:
 - Changed the step “Marks event as a reference event” to be “Adds event to an event catalog” since changed the concept of a reference event.
 - Changed the step “Views additional waveforms” to be “Displays additional waveforms”.
- Added new specs S-2603, and S-6469:
 - **S-2603:** [*Threshold*] The System shall provide the System User the capability to access requested waveform data.
 - **S-6469:** [*Threshold*] The System shall store detection feature maps.
- Removed specs S-1284, S-1372, S-1542, S-1579, S-1888, S-1892, S-1893, S-1894, S-1895, S-1896, S-1897, S-1898, S-1899, S-1900, S-1901, S-1902, S-1903, S-1904, S-1905, S-1906, S-1907, S-1908, S-1946, S-1959, S-1986, S-1987, S-1988, S-1997, S-1998, S-1999, S-2000, S-2166, S-2420, S-2588, and S-

5610. Most of the specs that were removed were mapped to UIS Common Components:

- **S-1284:** [*Threshold*] The System shall provide the Analyst the capability to view Waveform QC Masks.
- **S-1372:** [*Threshold*] The System shall provide the Analyst the capability to view continuous beams.
- **S-1542:** [*Threshold*] The System shall not automatically perform network signal association affecting signal detections that the Analyst is actively reviewing.
- **S-1579:** [*Threshold*] The System shall compute an event hypothesis quality metric using the event hypothesis quality statistics for each event hypothesis formed on the System.
- **S-1888:** [*Threshold*] The System shall provide the Analyst the capability to analyze continuous waveform data from within a selected time block.
- **S-1892:** [*Threshold*] The System shall provide the Analyst the capability to iteratively undo/redo back to the last saved state of an event.
- **S-1893:** [*Threshold*] The System shall provide the Analyst the capability to sort channels based on distance from event.
- **S-1894:** [*Threshold*] The System shall provide the Analyst the capability to sort channels based on station name.
- **S-1895:** [*Threshold*] The System shall provide the Analyst the capability to sort channels based on station probability of detection for an event.
- **S-1896:** [*Threshold*] The System shall provide the Analyst the capability to show all channels for a beam.
- **S-1897:** [*Threshold*] The System shall provide the Analyst the capability to show all channels for an array.
- **S-1898:** [*Threshold*] The System shall provide the Analyst the capability to show all channels for a 3-component station.
- **S-1899:** [*Threshold*] The System shall provide the Analyst the capability to zoom the time axis of the waveform display.
- **S-1900:** [*Threshold*] The System shall provide the Analyst the capability to scale the amplitude of individual displayed waveforms.
- **S-1901:** [*Threshold*] The System shall provide the Analyst the capability to view a group of waveforms with their amplitudes scaled relative to the amplitudes of the other waveforms in the group.
- **S-1902:** [*Threshold*] The System shall provide the Analyst the capability to adjust the height of an individual waveform display.
- **S-1903:** [*Threshold*] The System shall provide the Analyst the capability to scroll waveform data along the time axis.
- **S-1904:** [*Threshold*] The System shall provide the Analyst the capability to scroll the channels shown on the waveform display.
- **S-1905:** [*Threshold*] The System shall provide the Analyst the capability to select the number of channels that are simultaneously visible on the waveform display.

- **S-1906:** [*Threshold*] The System shall provide the Analyst the capability to time align waveforms based on observed signal detections for a user selected phase.
- **S-1907:** [*Threshold*] The System shall provide the Analyst the capability to time align waveforms based on real time.
- **S-1908:** [*Threshold*] The System shall provide the Analyst the capability to align waveforms based on theoretical signal detections for a user selected phase.
- **S-1946:** [*Threshold*] The System shall synchronize the System User's displays based on user actions.
- **S-1959:** [*Threshold*] The System shall provide the System User the capability to view on-line help.
- **S-1986:** [*Threshold*] The System shall provide the System User the capability to view associated and unassociated signal detections on an interactive map.
- **S-1987:** [*Threshold*] The System shall provide the System User the capability to view station data on an interactive map.
- **S-1988:** [*Threshold*] The System shall provide the System User the capability to view geographic data on an interactive map.
- **S-1997:** [*Threshold*] The System shall provide the Analyst the capability to save geospatial data.
- **S-1998:** [*Threshold*] The System shall provide the System User the capability to determine the spatial relationships of geospatial data.
- **S-1999:** [*Threshold*] The System shall provide the System User the capability to view tabular listings of the results of spatial processing of geospatial data.
- **S-2000:** [*Threshold*] The System shall provide the System User the capability to view graphical images of the results of spatial processing of geospatial data.
- **S-2166:** [*Threshold*] The System shall automatically process late-arriving waveform data within one (1) minute of receipt by the Data Processing Partition.
- **S-2420:** [*Threshold*] The System shall provide the Analyst the capability to store selected derived waveforms.
- **S-2588:** [*Threshold*] The System shall set the processing stage workflow status of events to reflect analysis activity.
- **S-5610:** [*Threshold*] The Data Processing Partition shall access and process all waveform data stored on the system.
- Changed the priority of specs S-1711, S-1712, S-1713, S-1714, S-1715, S-1716, S-1717, S-1718, S-1719, S-1735, S-1736, S-1737, and S-1738 from Threshold to Objective / Priority 1.
- Added new glossary term: Event Catalog.
- Removed general note #1, #3, and #4 since they did not add value to the use case.
- Added a new general note that the use cases invoked by this use case are responsible for computing quality metrics.

UC-03.02.01 Determines Waveform Data Quality

UPDATES FROM E2

- Added new glossary terms: Quality Control (QC), Random Binary Calibration, and Waveform Quality Control.

UC-03.02.02 Enhances Signals

UPDATES FROM E2

- Removed spec S-1372:
 - **S-1372:** [*Threshold*] The System shall provide the Analyst the capability to view continuous beams.

UC-03.02.03 Detects Signals

UPDATES FROM E2

- Removed specs S-1554 and S-1959:
 - **S-1554:** [*Threshold*] The System shall set to non-defining newly associated signal detections when the Analyst invokes automated processing algorithms to associate signal detections to existing event hypotheses.
 - **S-1959:** [*Threshold*] The System shall provide the System User the capability to view on-line help.
- Added new glossary term: Association.

UC-03.02.04 Measures Signal Features

UPDATES FROM E2

- Added new glossary term: Signal Characterization, Hydrophone Station.

UC-03.02.05 Refines Event Location

UPDATES FROM E2

- Added new glossary term: Origin.

UC-03.02.06 Refines Event Magnitude

UPDATES FROM E2

- Added new glossary terms: Maximum Likelihood Magnitude Estimation (MLE), and Station Magnitude.
- Added new general note #2 to include a list of the possible magnitudes that can be computed.

UC-03.02.07 Evaluates Moment Tensor

UPDATES FROM E2

- No updates since E2 delivery.

UC-03.02.08 Compares Events

UPDATES FROM E1

- Updated the architecturally significant statement to add more details.
- Updated the action description for “Displays available comparison events” in the main flow to use the phrase “events added to an event catalog” in place of “reference event”.
- Updated the action description for “Specifies event selection criteria” in the Subflow – Find Comparison Events Using Search Criteria to use the phrase “events added to an event catalog” in place of “reference event”.
- Added specs S-2043 and S-2223:
 - **S-2043:** [*Threshold*] The System shall store automatic and interactive processing results.
 - **S-2223:** [*Threshold*] The System shall store all data and derived processing results to persistent storage as soon as the data and/or derived processing results are available.
- Removed specs S-1946 and S-1959:

- **S-1946:** [*Threshold*] The System shall synchronize the System User's displays based on user actions.
 - **S-1959:** [*Threshold*] The System shall provide the System User the capability to view on-line help.
- Changed the priority of spec S-1889 from Threshold to Objective / Priority 1.
- Removed open issue.

UC-03.03 Scans Waveforms and Unassociated Detections

UPDATES FROM E1

- Updated the brief description to add scanning detection feature maps.
- Updated the architecturally significant statement to add more details.
- Added a new alternate flow to the main flow on the action “Save unassociated signal detections” that allows an Analyst to save derived waveforms that do not contain any signal detections.
- Added specs S-2043, S-2223, S-2420, and S-2603:
 - **S-2043:** [*Threshold*] The System shall store automatic and interactive processing results.
 - **S-2223:** [*Threshold*] The System shall store all data and derived processing results to persistent storage as soon as the data and/or derived processing results are available.
 - **S-2420:** [*Threshold*] The System shall provide the Analyst the capability to store selected derived waveforms.
 - **S-2603:** [*Threshold*] The System shall provide the System User the capability to access requested waveform data.
- Removed specs S-1284, S-1372, S-1542, S-1859, S-1892, S-1893, S-1894, S-1895, S-1896, S-1897, S-1898, S-1899, S-1900, S-1901, S-1902, S-1903, S-1904, S-1905, S-1906, S-1907, S-1908, S-1946, S-1959, S-1986, S-1987, S-1988, S-2166, S-2588, and S-5610. Most of the specs that were removed were mapped to UIS Common Components:
 - **S-1284:** [*Threshold*] The System shall provide the Analyst the capability to view Waveform QC Masks.
 - **S-1372:** [*Threshold*] The System shall provide the Analyst the capability to view continuous beams.
 - **S-1542:** [*Threshold*] The System shall not automatically perform network signal association affecting signal detections that the Analyst is actively reviewing.
 - **S-1859:** [*Threshold*] The System shall set the processing stage workflow status of a processing time interval to reflect analysis activity.
 - **S-1892:** [*Threshold*] The System shall provide the Analyst the capability to iteratively undo/redo back to the last saved state of an event.

- **S-1893:** [*Threshold*] The System shall provide the Analyst the capability to sort channels based on distance from event.
- **S-1894:** [*Threshold*] The System shall provide the Analyst the capability to sort channels based on station name.
- **S-1895:** [*Threshold*] The System shall provide the Analyst the capability to sort channels based on station probability of detection for an event.
- **S-1896:** [*Threshold*] The System shall provide the Analyst the capability to show all channels for a beam.
- **S-1897:** [*Threshold*] The System shall provide the Analyst the capability to show all channels for an array.
- **S-1898:** [*Threshold*] The System shall provide the Analyst the capability to show all channels for a 3-component station.
- **S-1899:** [*Threshold*] The System shall provide the Analyst the capability to zoom the time axis of the waveform display.
- **S-1900:** [*Threshold*] The System shall provide the Analyst the capability to scale the amplitude of individual displayed waveforms.
- **S-1901:** [*Threshold*] The System shall provide the Analyst the capability to view a group of waveforms with their amplitudes scaled relative to the amplitudes of the other waveforms in the group.
- **S-1902:** [*Threshold*] The System shall provide the Analyst the capability to adjust the height of an individual waveform display.
- **S-1903:** [*Threshold*] The System shall provide the Analyst the capability to scroll waveform data along the time axis.
- **S-1904:** [*Threshold*] The System shall provide the Analyst the capability to scroll the channels shown on the waveform display.
- **S-1905:** [*Threshold*] The System shall provide the Analyst the capability to select the number of channels that are simultaneously visible on the waveform display.
- **S-1906:** [*Threshold*] The System shall provide the Analyst the capability to time align waveforms based on observed signal detections for a user selected phase.
- **S-1907:** [*Threshold*] The System shall provide the Analyst the capability to time align waveforms based on real time.
- **S-1908:** [*Threshold*] The System shall provide the Analyst the capability to align waveforms based on theoretical signal detections for a user selected phase.
- **S-1946:** [*Threshold*] The System shall synchronize the System User's displays based on user actions.
- **S-1959:** [*Threshold*] The System shall provide the System User the capability to view on-line help.
- **S-1986:** [*Threshold*] The System shall provide the System User the capability to view associated and unassociated signal detections on an interactive map.
- **S-1987:** [*Threshold*] The System shall provide the System User the capability to view station data on an interactive map.

- **S-1988:** [*Threshold*] The System shall provide the System User the capability to view geographic data on an interactive map.
- **S-2166:** [*Threshold*] The System shall automatically process late-arriving waveform data within one (1) minute of receipt by the Data Processing Partition.
- **S-2588:** [*Threshold*] The System shall set the processing stage workflow status of events to reflect analysis activity.
- **S-5610:** [*Threshold*] The Data Processing Partition shall access and process all waveform data stored on the system.
- Added new glossary terms: Detection Feature Map, and Geographic Region.
- Removed general notes #1 and #2.

UC-03.04 Builds Event

UPDATES FROM E2

- Updated the architecturally significant statement to add more details.
- Added new spec S-1554, and S-2603:
 - **S-1554:** [*Threshold*] The System shall set to non-defining newly associated signal detections when the Analyst invokes automated processing algorithms to associate signal detections to existing event hypotheses.
 - **S-2603:** [*Threshold*] The System shall provide the System User the capability to access requested waveform data.
- Removed specs S-1284, S-1986, S-1987 and S-5610:
 - **S-1284:** [*Threshold*] The System shall provide the Analyst the capability to view Waveform QC Masks.
 - **S-1986:** [*Threshold*] The System shall provide the System User the capability to view associated and unassociated signal detections on an interactive map.
 - **S-1987:** [*Threshold*] The System shall provide the System User the capability to view station data on an interactive map.
 - **S-5610:** [*Threshold*] The Data Processing Partition shall access and process all waveform data stored on the system.
- Added new glossary term: Association.

UC-03.05 Marks Processing Stage Complete

UPDATES FROM E1

- Updated the architecturally significant statement to add more details.

- Removed the action description for the step “Selects Processing Activity workflow” in the main flow.
- Removed specs S-1946 and S-1959:
 - **S-1946:** [*Threshold*] The System shall synchronize the System User's displays based on user actions.
 - **S-1959:** [*Threshold*] The System shall provide the System User the capability to view on-line help.
- Added a new IDC Specific note about reviewing the list of events that have been determined by the System to meet event formation criteria to be migrated to the next IDC bulletin before marking the processing stage complete.

UC-05.02 Views System Results

UPDATES FROM E1

- Updated UC number since the use case ‘Approves Event for Release’ was made an NDC specific use case.
- Updated the architecturally significant statement to add more details.
- Added a precondition that the Authorized External User has been granted access to the System web servers.
- Added new specs S-1947, S-5996, S-5686, S-5687, S-6543, and S-6544:
 - **S-1947:** [*Threshold*] The System shall implement user interfaces according to the User Interface Guidelines.
 - **S-5996:** [*Threshold*] The System shall provide the Authorized External User the capability to specify the time associated with whether an event hypothesis location or event hypothesis location uncertainty is within an active geographic region.
 - **S-5686:** [*IDC only, Threshold*] The System shall provide the System User the capability to access the System using their CTBTO “single sign on” credentials.
 - **S-5687:** [*IDC only, Threshold*] The System shall provide user identification and authentication through the CTBTO “single sign on”.
 - **S-6543:** [*IDC only, Threshold*] The System shall provide the Authorized External User the capability to select the screening criteria parameters the System uses to calculate a National Standard Screened Event Bulletin.
 - **S-6544:** [*IDC only, Threshold*] The System shall provide the Authorized External User the capability to select parameters controlling which screening criteria numerical metric scores the System combines when calculating overall screening categories for a National Standard Screened Event Bulletin.
- Removed specs S-1974, S-1975, S-2097, S-5893, S-5763, S-5764, and S-5792:
 - **S-1974:** [*Threshold*] The System shall generate graphical images of the results of spatial processing of geospatial data.

- **S-1975:** [*Threshold*] The System shall generate tabular listings of the results of spatial processing of geospatial data, e.g. event hypothesis data selected by spatial processing with geographic information.
- **S-2097:** [*Threshold*] The System shall provide the System User the capability to view station ambient noise probability density functions.
- **S-5893:** [*Threshold*] The System shall provide the System User the capability to view reports.
- **S-5763:** [*IDC only, Extensibility*] The System shall apply user-specified processing to existing data and products to create custom reports.
- **S-5764:** [*IDC only, Threshold*] The System shall provide the Authorized External User the capability to select user-specified processing of data and products to create custom reports.
- **S-5792:** [*IDC only, Threshold*] The System shall provide the Authorized External User the capability to modify previously configured automated event warning/notification targets.
- Added new glossary term: Geographic Region.
- Removed IDC Specific notes #2 and #3 which concerned the Authorized External User having the capabilities to select parameters to control event warnings and notifications and setting up a subscription for processing results.
- Updated IDC Specific note #5 (now #3) to add text about the National Standard Screened Event Bulletin.
- Added new IDC Specific note about the single sign-on capabilities for System Users accessing the web portal.

UC-06.03 Defines Processing Sequence

UPDATES FROM E1

- Updated the architecturally significant statement to add more details.
- Removed alternate flow in the main flow for undo/redo.
- Added new specs S-1653 and S-2159:
 - **S-1653:** [*Threshold*] The System shall compute new event hypothesis magnitude estimates when a new event hypothesis location is computed.
 - **S-2159:** [*Threshold*] The System shall provide the Researcher the capability to store time-series signals generated by each transformation applied during system signal processing for evaluation by third-party tools.
- Removed specs S-1946 and S-1959:
 - **S-1946:** [*Threshold*] The System shall synchronize the System User's displays based on user actions.
 - **S-1959:** [*Threshold*] The System shall provide the System User the capability to view on-line help.

UC-06.06 Views System Configuration History

UPDATES FROM E1

- Updated UC number since the use case 'Configures System Messages' was removed from the use case model.
- Updated the architecturally significant statement to add more details.
- Added specs S-1329, S-1880, S-6470, S-6482, S-6483, S-6520, and S-6524:
 - **S-1329:** [*Threshold*] The System shall provide the System Maintainer the capability to configure waveform filters by geographic region.
 - **S-1880:** [*Threshold*] The System shall provide the System Maintainer the capability to configure automated event warning/notification targets as geographic regions defining areas of interest.
 - **S-6470:** [*Threshold*] The System shall provide the System Maintainer the capability to configure detection feature map calculations per station.
 - **S-6482:** [*Threshold*] The System shall provide the System Maintainer the capability to configure how often the System computes station quality metrics.
 - **S-6483:** [*Threshold*] The System shall provide the System Maintainer the capability to configure for which raw channels and derived channels the System computes the station quality metric.
 - **S-6520:** [*Threshold*] The System shall provide the System Maintainer the capability to configure how the System uses seed events to build new events.
 - **S-6524:** [*Threshold*] The System shall provide the System Maintainer the capability to configure how the System creates seed events from event bulletins.
- Removed specs S-1523, S-1946, and S-1959:
 - **S-1523:** [*Threshold*] The System shall provide the System Maintainer the capability to configure the seismic signal detection grouping criteria by geographic region.
 - **S-1946:** [*Threshold*] The System shall synchronize the System User's displays based on user actions.
 - **S-1959:** [*Threshold*] The System shall provide the System User the capability to view on-line help.
- Changed the priority of specs S-1701, S-1702, S-1703, and S-1704 from Threshold to Objective / Priority 1.
- Added new glossary term: Sustainment/Test Subsystem.
- Removed the use case 'Configures System Messages' from the list in general note #1 since this use case was removed from the model.
- Updated general note #2 to state that the System User can use offline tools to compare configuration between subsystems.

UC-07.01 Analyzes Mission Performance

UPDATES FROM E1

- Updated the architecturally significant statement to add more details.
- Updated the main flow:
 - Moved the text of action description for the System action “d) Displays Analysts Tool Usage Statistics” to the action description for the Analyst action “Performs Selected Action”.
- Updated the Subflow – Analyzes Station Processing Performance:
 - Updated the text for the action description “Selects to Analyze Station Performance” to replace the text “functioning correctly” with the text “appropriately detecting signals from the waveforms data”.
 - Updated the text for the action description “Selects one of the following approaches to analyze station processing performance” to replace the text “functioning correctly” with the text “appropriately detecting signals from the waveforms data for all stations”.
 - Updated the text for the action description “View Signal Station Performance” to replace the text “gain deeper understanding of performance of the Station Processing” to “view all available Station Processing performance metrics”.
 - Updated the text for the action description “View Cross-Station Performance Details” to replace the text “gain deeper understanding of” to “view”.
 - Removed text from the action descriptions for “a) Displays Station Performance Overview”, “b) Displays Single Station Performance Details”, and “c) Displays Cross-Station Performance Comparison” that detailed how the display can be configured.
- Updated the Subflow – Analyzes Network Processing Performance:
 - Removed text from the action description for “a) Displays Network Performance Overview” that detailed how the display can be configured.
- Removed specs S-1946, and S-1959:
 - **S-1946:** [*Threshold*] The System shall synchronize the System User's displays based on user actions.
 - **S-1959:** [*Threshold*] The System shall provide the System User the capability to view on-line help.
- Changed the priority of spec S-1189 from Threshold to Objective / Priority 1.
- Added a new general spec to say the Performance Monitor can view and analyze meteorological data.

UC-08.02 Controls the System

UPDATES FROM E1

- Removed specs S-1946, and S-1959:
 - **S-1946:** [*Threshold*] The System shall synchronize the System User's displays based on user actions.
 - **S-1959:** [*Threshold*] The System shall provide the System User the capability to view on-line help.
- Added new glossary terms: Operational Subsystem (OPS).

UC-08.05 Views Event History

UPDATES FROM E1

- Updated the architecturally significant statement to add more details.
- Removed specs S-1946, S-1959, S-1974, S-1975, S-1986, S-1987, S-1988, S-1989, S-1990, S-1991, S-1993, S-1995, S-1998, S-2000, S-2597, S-5603, S-5604 and S-5997. Most of these specs were mapped to UIS Common Components:
 - **S-1946:** [*Threshold*] The System shall synchronize the System User's displays based on user actions.
 - **S-1959:** [*Threshold*] The System shall provide the System User the capability to view on-line help.
 - **S-1974:** [*Threshold*] The System shall generate graphical images of the results of spatial processing of geospatial data.
 - **S-1975:** [*Threshold*] The System shall generate tabular listings of the results of spatial processing of geospatial data, e.g. event hypothesis data selected by spatial processing with geographic information.
 - **S-1986:** [*Threshold*] The System shall provide the System User the capability to view associated and unassociated signal detections on an interactive map.
 - **S-1987:** [*Threshold*] The System shall provide the System User the capability to view station data on an interactive map.
 - **S-1988:** [*Threshold*] The System shall provide the System User the capability to view geographic data on an interactive map.
 - **S-1998:** [*Threshold*] The System shall provide the System User the capability to determine the spatial relationships of geospatial data.
 - **S-2000:** [*Threshold*] The System shall provide the System User the capability to view graphical images of the results of spatial processing of geospatial data.
 - **S-2597:** [*Threshold*] The System shall provide the System User the capability to specify the time associated with whether an event hypothesis

location or event hypothesis location uncertainty is within an active geographic region.

- **S-5603:** [*Threshold*] The System shall provide the System User the capability to view inactive geographic region boundaries on an interactive map.
- **S-5604:** [*Threshold*] The System shall provide the System User the capability to simultaneously view event hypothesis locations and inactive geographic region boundaries on an interactive map.
- **S-5997:** [*Threshold*] The System shall provide the System User the capability to view on an interactive map whether an event hypothesis location is within an active geographic region for a user specified time.

UC-09.03 Replays Test Data Set

UPDATES TO E1

- Updated the architecturally significant statement to add more details.
- Removed specs S-1946, S-1959:
 - **S-1946:** [*Threshold*] The System shall synchronize the System User's displays based on user actions.
 - **S-1959:** [*Threshold*] The System shall provide the System User the capability to view on-line help.
- Changed the priority for S-5729 and S-5730 from Threshold to Extensibility.
- Added new glossary terms: Development Subsystem, Sustainment/Test Subsystem, Continuous Automated Testing Subsystem.
- Removed open issue.

UC-11.02 Develops New Algorithms and Models

UPDATES TO E1

- Updated the architecturally significant statement to add more details.
- Updated the main flow:
 - Updated the text for action description for “Requests data” to remove the text about an ANSI/ISO standard SQL interface.
 - Updated the text for action description for “Develops new algorithm model” to add the sentence that the Researcher can create and run unit test for new algorithm software.
 - Removed steps “Selects to install new algorithm or model”, “Installs new algorithm or model for testing” and replaced them with a decision point “Does algorithm require integrated testing?”

- Removed action descriptions for steps “If required, Invokes Use Case - Defines Processing Sequence” and “If required, Invokes Use Case – Configures Processing Components”.
- Removed decision point “New algorithm or model development complete”.
- Removed alternate flows on steps that were removed from the flow.
- Updated the Subflow – Tests New Algorithm or Model:
 - Updated alternate flow on action “if required, Invoke Use Case: Replays Test Data Set” to give an example of when invoking the use case will not create processing results.
- Added new spec S-2031:
 - **S-2031:** [*IDC only, Threshold*] The System shall provide the Researcher the capability to access the database through a read-only ANSI/ISO standard SQL interface.
- Removed specs S-1946, S-1959:
 - **S-1946:** [*Threshold*] The System shall synchronize the System User's displays based on user actions.
 - **S-1959:** [*Threshold*] The System shall provide the System User the capability to view on-line help.
- Added new glossary term: Development Subsystem.
- Added IDC Specific note that the Researcher can use an ANSI/ISO standard SQL interface to request System data in addition to the COI.

UC-13.02 Performs Standalone Analysis

UPDATES TO E1

- Updated the architecturally significant statement to add more details.
- Removed specs S-1946, S-1959:
 - **S-1946:** [*Threshold*] The System shall synchronize the System User's displays based on user actions.
 - **S-1959:** [*Threshold*] The System shall provide the System User the capability to view on-line help.

UC-14.01 Assesses Event Consistency

UPDATES TO E2

- Updated UC number since the use case ‘System Assesses Event Consistency’ was merged with ‘Assesses Event Consistency’.

- Updated the brief description to remove the text “for an event of comparable size in the same general location” from the sentence about comparing event characteristics.
- Added a new general note that the System Maintainer may determine expected values by comparing historical events of comparable size in the same general location.

UC-14.02 System Screens Event

UPDATES TO E2

- Updated UC number since the use case ‘System Assesses Event Consistency’ was merged with ‘Assesses Event Consistency’.
- Updated the brief description to add in the screening for publishing events in the Reviewed Event Bulletin in addition to the Standard Event Bulletin and Standard Screened Event Bulletin.
- Removed the precondition about events being available in the REB.
- Added a new postcondition that events that meet the event definition criteria are published in the REB.
- Updated the main flow:
 - Added a new step at the beginning for the System to calculate event definition characteristics and in the action description described event definition characteristics as found in the IDC user guide .
 - Added a new step after that for the System to apply the event definition criteria and create the REB.
 - Updated the step to read “System calculates event screening characteristics” to distinguish this from the event definition characteristics.
 - Updated the step to be “System assigns event screening categories to create the SEB” and added information to the action description to be specific about what is in the SEB.
 - Updated the step to read “System applies event screening categories to create the SSEB” and added information to the action description to be specific about what is in the SSEB.
 - Added a new step at the end to make the event available to the web portal.
- Added new specs S-6548, S-6549, S-6550, S-6552 and S-6553:
 - **S-6548:** *[IDC only, Threshold]* The System shall calculate event definition criteria for each event based on a weighted count of defining signal detection feature measurements.
 - **S-6549:** *[IDC only, Threshold]* The System shall calculate event definition criteria for each event based on the number of configured observation types at specific station types.
 - **S-6550:** *[IDC only, Threshold]* The System shall publish events in the Reviewed Event Bulletin (REB) based on the event definition criteria.

- **S-6552:** [*IDC only, Threshold*] The System shall publish events in the Standard Event Lists (SEL1, SEL2, SEL3) based on configuration.
- **S-6553:** [*IDC only, Threshold*] The System shall provide the System Maintainer the capability to configure the criteria used to publish bulletins.
- Updated general note to say the NSEB and NSSEB could be requested through the web portal.

UC-14.03 System Controls Stations

UPDATES TO E2

- Updated UC number since the use case 'System Assesses Event Consistency' was merged with 'Assesses Event Consistency'.
- Changed the use case name to remove "Monitoring".
- Added new glossary term: Random Binary Calibration.
- Updated general note #2 and combined it with general note #3 to remove the text that commands sent using email, and instead point to the documentation that defines the current protocol for communicating with the stations.

UC-14.04 Performs Expert Technical Analysis

UPDATES TO E1

- Updated UC number since the use case 'System Assesses Event Consistency' was merged with 'Assesses Event Consistency'.
- Updated the brief description to make it more clear what products are generated in this use case.
- Updated precondition to combine the two preconditions into one precondition.
- Added new specs S-1947, S-5763 and S-5764:
 - **S-1947:** [*Threshold*] The System shall implement user interfaces according to the User Interface Guidelines.
 - **S-5763:** [*IDC only, Extensibility*] The System shall apply user-specified processing to existing data and products to create custom reports.
 - **S-5764:** [*IDC only, Threshold*] The System shall provide the Authorized External User the capability to select user-specified processing of data and products to create custom reports.

